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18. Headings

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One of the most useful characteristics of technical writing is the use of headings.

Headings are the titles and subtitles you see within the actual text of much professional scientific, technical, and business writing. Headings are like the parts of an outline that have been pasted into the actual pages of the document.

Headings are an important feature of professional technical writing: they alert readers to upcoming topics and subtopics, help readers find their way around in long reports and skip what they are not interested in, and break up long stretches of straight text. They make text easy to navigate and enable the reader to find information they need quickly.

Headings are also useful for you, the writer. They keep you organized and focused on the topic. When you begin using headings, your impulse may be to slap in the headings *after* you've written the rough draft. Instead, visualize the headings *before* you start the rough draft, and plug them in as you write.

When you complete this chapter, you will be able to:

- Identify the uses of headings
- Tell the difference between the different levels of headings
- Evaluate the use of headings in technical documents
- Use the Styles tool in MicroSoft Word to create custom headings
- Create and use headings in your own documents

Take a look at this page from Healthy People.gov , [Environmental Health](#)

(If the link doesn't open, right click on it, then select Open in New Window)

Examine the page, and observe how the use of headings makes the document readable and accessible. Its easy to see what each section is about, and you can quickly jump to sections that interest you.

Your task in this chapter is to learn how to use headings and to learn the style and format of a specific design of headings.

General Guidelines for Headings

In this chapter, you are encouraged to use a specific style of headings. . If you want to use a different style, contact your instructor. Here are some specific guidelines on headings (see the figures at the end of this chapter for illustrations of these guidelines):

- Use headings to mark off the boundaries of the major sections and subsections of a report.
- Until you become confident in the use of heading styles, use exactly the design for headings described here and shown in the illustrations in this chapter. Use the same spacing (vertical and horizontal location), capitalization, punctuation, and typography (bold, italics, etc..
- Try for 2 to 3 headings per regular page of text. Don't overdo headings: for example, a heading for each of a series of one- or two-sentence paragraphs. (Also, you don't need a heading per every paragraph; normally, an individual heading can apply to multiple paragraphs.)
- For short documents, begin with the second-level heading; skip the first-level.

“ *Well-designed headings can help not only readers but also writers understand the organization of a document.* ”

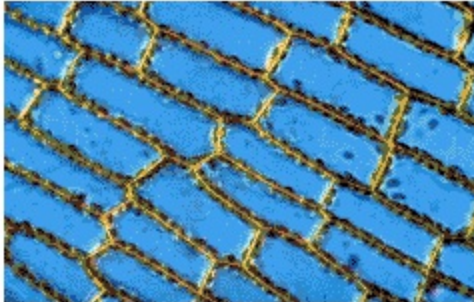
II. PROCESS OF PHOTOSYNTHESIS

Photosynthesis is the process by which green plants use the energy of light to convert carbon dioxide and water into the simple sugar glucose. Plants use much of this glucose as an energy source to build leaves, flowers, fruits, and seeds. A byproduct of photosynthesis is oxygen, which is created during the process of converting carbon dioxide and water into glucose.

Where Photosynthesis Occurs

Second-level heading

Photosynthesis occurs in leaves and green stems within specialized cell structures called chloroplasts. A plant leaf is composed of tens of thousands of cells; each cell contains forty to fifty chloroplasts. Embedded in the membranes of leaves are hundreds of molecules of chlorophyll, a light-trapping pigment required for photosynthesis. Each chloroplast will contain millions of the chlorophyll pigment molecules.



Chloroplasts.

Source: Microsoft Encarta Online Encyclopedia, 2001.

How Photosynthesis Works

Second-level heading

Photosynthesis can be divided into two stages: first, the light-dependent reaction, in which chloroplasts trap light energy and convert it into glucose; second, the light-independent reaction, which provides the energy used to synthesize glucose into the leaf structure. These two stages reflect the literal meaning of the term photosynthesis: to build with light.

Third-level heading

Light-dependent reaction. Photosynthesis relies on flows of energy and electrons initiated by light energy. Electrons are minute particles that travel in a specific orbit around the nuclei of atoms and carry a small electrical charge. Light energy causes the electrons in chlorophyll to boost up and out of their orbit, releasing vibrating energy as they go, all in millionths of a second. The vibrating energy passes rapidly from one chlorophyll to the next, like the transfer of energy in billiard balls.

Third-level heading

Light-independent reaction. The light-independent reaction requires the presence of carbon dioxide molecules, which enter the plant through pores in the leaf called stomata,

Heading style and format standard for courses using this online textbook. If you want to use a different format, contact your instructor.

- Make the phrasing of headings parallel. In the following illustration, notice that the second-level headings use the *how*, *what*, *when*, *where*, *why* style of phrasing. The third-levels use noun phrases. (Check out this tutorial on [Parallel Structure](#) from the Purdue OWL)
- Make the phrasing of headings self-explanatory: instead of "Background" or "Technical Information," make it more specific, such as "Physics of Fiber Optics."
- Make headings indicate the range of topic coverage in the section. For example, if the section covers the *design* and *operation* of a pressurized water reactor, the heading "Pressurized Water Reactor Design" would be incomplete and misleading.
- Avoid "lone" headings—any heading by itself within a section without another like it in

that same section. For example, avoid having a second-level heading followed by only one third-level and then by another second-level. (The third-level heading would be the lone heading.)

- Avoid "stacked" headings—any two consecutive headings without intervening text.
- Avoid pronoun reference to headings. For example, if you have a third-level heading "Torque," don't begin the sentence following it with something like this: "This is a physics principle....."
- When possible, omit articles from the beginning of headings. For example, "The Pressurized Water Reactor" can easily be changed to "Pressurized Water Reactor" or, better yet, "Pressurized Water Reactors."
- Don't use headings as lead-ins to lists or as figure titles.
- Avoid "widowed" headings: that's where a heading occurs at the bottom of a page and the text it introduces starts at the top of the next page. Keep at least two lines of body text with the heading, or force it to start the new page.

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Headings: Specific Format and Style

The style and format for headings shown in this chapter is not the "right" or the "only" one, just one among many. Many technical writers must write according to a "house" style. Most organizations expect their documents to look a certain way. Using the style and format for headings described here gives you some experience with one of the key requirements in technical writing—writing according to "specifications."

II. PRESURIZED WATER REACTOR

This section of the report describes the key components of the pressurized light water reactor and explains their operation in the production of electricity.

Description of the Major Parts

In a pressurized water reactor (see Figure 1), the reactor cooling water entering the core is highly pressurized so that it remains below the boiling point. The water leaves the reactor to pass through steam generators where a secondary coolant is allowed to boil and produce steam to drive the turbine.

Headings are like individual outline items inserted into the text where they apply.

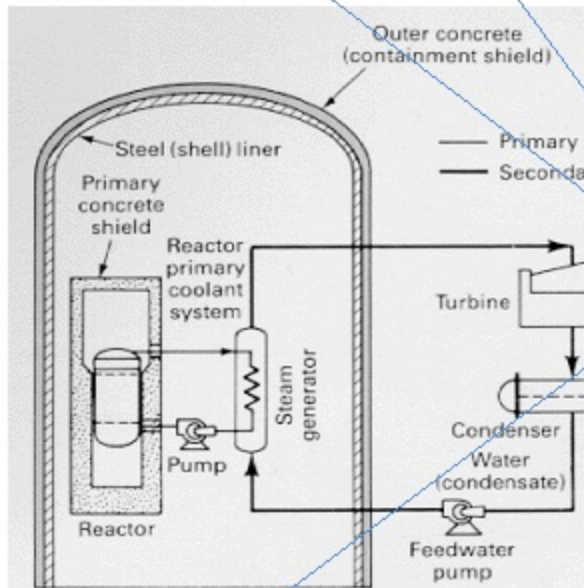


Figure 1. Schematic of a Pressurized Water Reactor. See V. A. Guidebook to Nuclear Reactors, p. 78.

The key components in this process are the core, the reactor vessel, the steam generators, and the pressurizer.

Core. The core is the active portion of the reactor providing heat to the primary coolant system. The core contains fuel assemblies that contain fuel pellets.

Fuel. The fuel in the pressurized water reactor consists of slightly enriched uranium dioxide with a diameter of 0.325 in. by 8.93 in. The pellets are dished at the ends to allow for thermal expansion [12:2004].

Fuel rod. A fuel rod consists of a cylindrical tube made of Zircalloy, a steel-gray alloy that is highly resistant to corrosion. This tube is 13 ft long with an outer diameter of 0.39 in. and a 0.025-in. thick wall. The tube is filled with fuel pellets and is sealed [10:122].

OUTLINE

I. INTRODUCTION

II. PRESSURIZED WATER REACTORS

A. Description of the Major Parts

1. Core
 - a. Fuel
 - b. Fuel rod
 - c. Fuel assembly
2. Control Rods
3. Reactor Vessel
4. Steam Generators
5. Heat Exchangers
6. Steam Drum
7. Pressurizer

B. Production of Electricity

1. Circulating of water
2. Separating steam
3. Drying steam
4. Producing electricity

Headings and outlines: headings function like outline elements inserted into the text at those points where they apply.

To see the "house style" for headings—the style and format for headings you will use—see the illustrations in this chapter. Pay close attention to formatting details such as vertical and horizontal spacing, capitalization, use of bold, italics, or underlining, and punctuation. Notice that you can substitute bold for underlining.

Headings occur *within* the body of a document. Don't confuse headings with document titles. Although titles may look like first-level headings in smaller documents, think of them as separate things. Now, here are the specifications for headings in this chapter.

Note: To make things less complicated, consider the document title as a *title* not as a *first-level heading*. They certainly look the same, except that the title could be prefaced by a roman numeral. In short documents such as those you write for technical writing classes, use a centered title and then start with second-level headings in the body of the document.

First-Level Headings

First-level headings are for formal reports with multiple sections (or "chapters"). If you are writing a brief document, start with second-level headings in the body of the document. Follow these guidelines for first-level headings:

- Make first-levels all-caps.
- Use Roman numerals with first-levels.
- Bold the entire heading including the Roman numeral.
- Make first-levels centered on the page.
- Start a new page whenever you have a first-level heading.
- Begin first-levels on the standard first text line of a page.

Note: In short documents such as those you write for technical writing classes, use a centered title and then start with second-level headings in the body of the document.

Second-Level Headings

In smaller documents (such as a two-page set of instructions), first-level headings are too much. Start with second-level headings in the body of these smaller documents. Follow these guidelines for second-level headings:

- Make second-levels headline-style caps (every main word).
- Use bold on second-levels.
- Do not include outlining apparatus such as "A." or "B." or "1." or "2." with second-levels.
- Make second-levels flush left.
- Leave the equivalent of 2 blank lines between previous text and second-levels.
- Leave the equivalent of 1 blank line between second-levels and the following text.

Note: If you prefer to make third-level headings standalone like second-levels, they may not be visually distinct enough from second-levels. If so, put a top border on second-levels, as you can see in this chapter.

Third-Level Headings

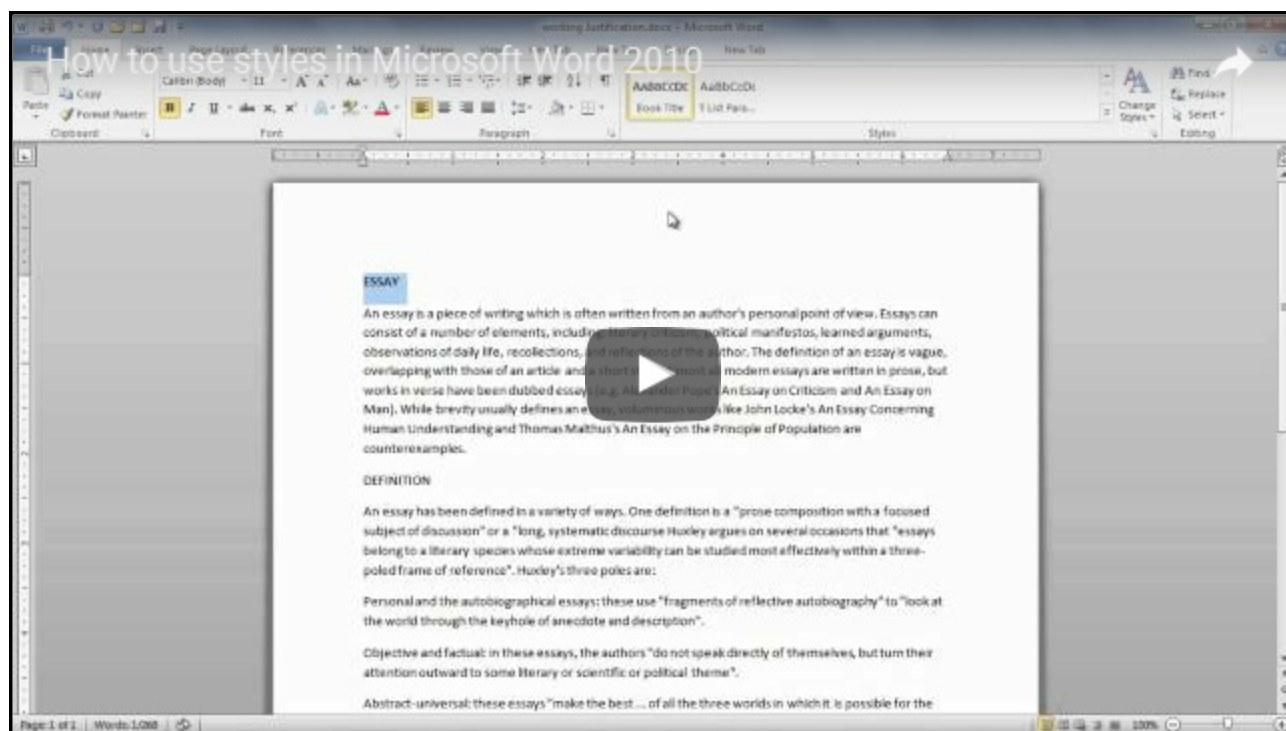
Third-level headings are "run in to" the paragraph they introduce. Follow these guidelines for third-level headings:

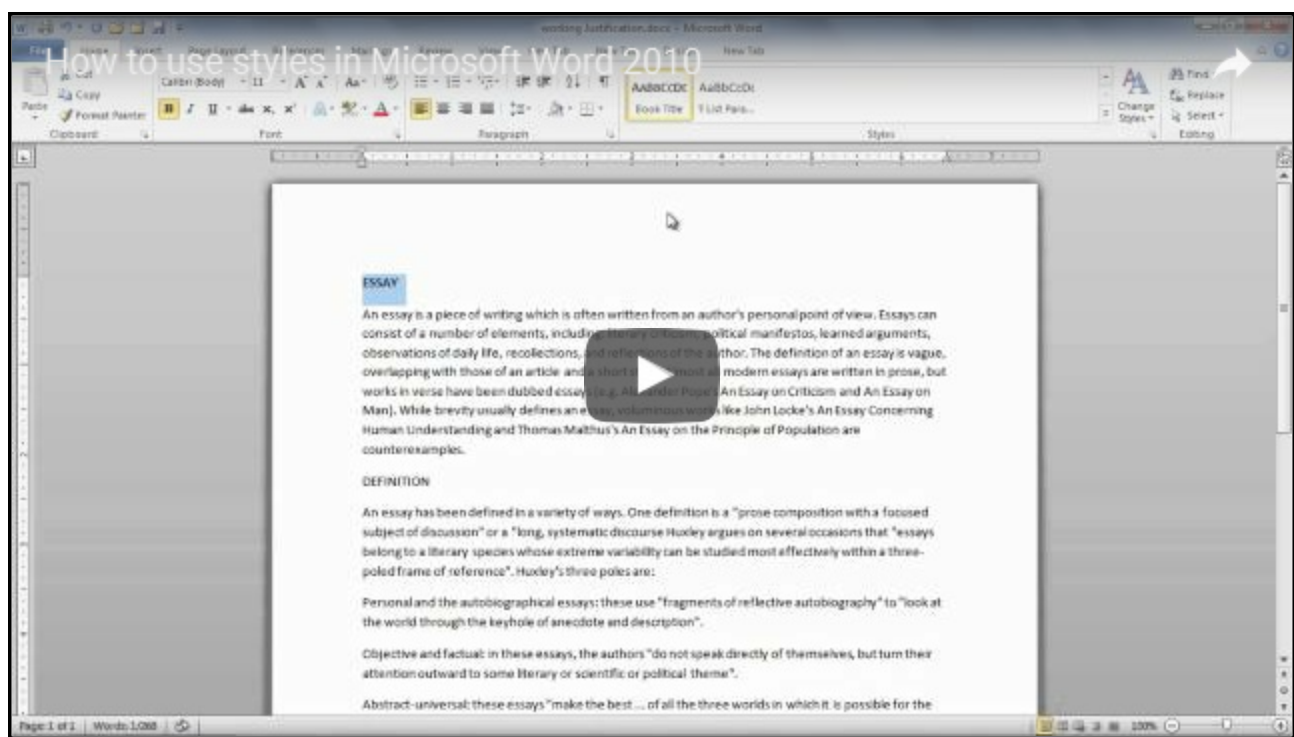
- Make third-levels sentence-style caps.
- Use bold for third-levels including the period.
- End third-levels with a period, which is also bold.
- Do not include outlining apparatus such as "A." or "B." or "1." or "2." with third-levels.
- Either indent third-levels standard paragraph indentation, or just start third-levels flush left.
- Do not make third-levels a grammatical part of sentences that follow.
- Whether third-levels are indented or not, start all following lines flush left. Don't indent the entire paragraph.
- Use the standard spacing between paragraphs for paragraphs that contain third-levels.

Note: If you need a fourth level of heading, consider using italics instead of bold on the run-in heading format.

Using Word-Processing Styles for Headings

If you manually format each individual heading using the guidelines presented in the preceding, you'll find you're doing quite a lot of repetitive work. The *styles* provided by Microsoft Word, OpenOffice Writer, and other software save you this work. You simply select Heading 1, Heading 2, Heading 3, and so on. You'll notice the format and style are different from what is presented here. However, you can design your own styles for headings. Here's a video tutorial that will show you quickly how to use the Styles feature in MicroSoft Word.





Common Problems with Headings

When you design your own heading style, be careful about going overboard with fancy typographical elements. Also, continue to use the guidelines presented in this chapter; they apply to practically any design. And finally, use your heading design consistently throughout your document.

I. THE NATURAL WEATHER PATTERNS

II. THE MECHANISMS OF THE GREENHOUSE EFFECT

- A. Natural Greenhouse Effect
- B. Radiation Absorption by Carbon Dioxide and Water Vapor
- C. Positive Feedback Mechanisms

III. HOW THE CARBON CYCLE WORKS

- A. CO₂ from Fossil Fuel
- B. Carbon Dioxide Produced by Different Fuels
- C. Future Levels of Carbon Dioxide

IV. CLIMATIC EFFECTS OF INCREASED CO₂ CONCENTRATIONS

- A. Changes in Local Weather Patterns
- B. 1930s as Climate Analog
- C. Drought
- D. Increased Tropical Storm Activity
- E. Sea Level Increase

V. REDUCING THE GREENHOUSE EFFECT

Unnecessary introductory articles

Two items not parallel in phrasing

I. NATURAL WEATHER PATTERNS

II. MECHANISMS OF THE GREENHOUSE EFFECT

- A. Natural Greenhouse Effect
- B. Radiation Absorption by Carbon Dioxide and Water Vapor
- C. Positive Feedback Mechanisms

III. CARBON CYCLE

- A. CO₂ from Fossil Fuel
- B. Carbon Dioxide Produced by Different Fuels
- C. Future Levels of Carbon Dioxide

IV. CLIMATIC EFFECTS OF INCREASED CO₂ CONCENTRATIONS

- A. Changes in Local Weather Patterns
- B. 1930s as Climate Analog
- C. Drought
- D. Increased Tropical Storm Activity
- E. Sea Level Increase

V. WAYS TO REDUCE THE GREENHOUSE EFFECT

Common problems with headings: picture these outline items in the actual text.

Types of Thunderstorms

Single cell thunderstorms. A single cell thunderstorm is a storm that contains only one updraft and one downdraft. A single cell storm is actually not a common occurrence, because one cell usually triggers the formation of another cell.

Multicell thunderstorms. A multicell is a line of thunderstorms with a gust front at the head of the storm. A *gust front* is a boundary of cool dry air that forms in front of a cold front. When the cold dry air forces the warmer air up, the multicell storm has multiple updrafts and different stage of the thunderstorm cycle.

Supercell thunderstorms. This is the most powerful thunderstorm, capable of producing devastating weather, such as high winds, heavy precipitation, and tornadoes. A supercell is always severe weather; the other types of thunderstorms can be severe or not. What makes a supercell so destructive is the presence of a rotating updraft, called a *mesocyclone*.

The mesocyclone funnels the warm moist air into one large spiraling updraft, rather than creating several individual updrafts. This increases the longevity, strength, and size of a thunderstorm and heightens the chances for severe weather.

Benefits of thunderstorms. Though thunderstorms are frequently viewed as destructive forces, they have a beneficial side as well....

Stacked headings: intervening text needed.

Pronoun referring to a heading from following text

Types of Thunderstorms

Thunderstorms are classified in three categories based upon the storm's severity. Storms can have physical traits that cross the boundaries of these categories, and a storm may change its category during its existence. Storms can form as one isolated cell, a group of cells, or a supercell.

Single cell thunderstorms. A single cell thunderstorm is a storm that contains only one updraft and one downdraft. A single cell storm is actually not a common occurrence, because one cell usually triggers the formation of another cell.

Multicell thunderstorms. A multicell is a line of thunderstorms with a gust front at the head of the storm. A *gust front* is a boundary of cool dry air that forms in front of a cold front. When the cold dry air of the gust front meets warm moist air, the cold dry air forces the warmer air up with thunderstorms as a result. A multicell storm has multiple updrafts and downdrafts with each cell operating in a different stage of the thunderstorm cycle.

Supercell thunderstorms. The supercell is the most powerful and longest lasting thunderstorm, capable of producing devastating weather, such as high winds, heavy precipitation, and tornadoes. A supercell is always severe weather; the other types of thunderstorms can be severe or not. What makes a supercell so destructive is the presence of a rotating updraft, called a *mesocyclone*.

The mesocyclone funnels the warm moist air into one large spiraling updraft, rather than creating several individual updrafts. This increases the longevity, strength, and size of a thunderstorm and heightens the chances for severe weather.

Benefits of Thunderstorms

Though thunderstorms are frequently viewed as destructive forces, they have a beneficial side as well....

Heading at wrong level: it should be a 2nd level like "Types of Thunderstorms"

A few more common heading problems: nonstandard capitalization, incorrect subordination, and "stacked" heads. There's nothing "wrong" about the caps style used in the first version; it's just not the "house" style. Subordination refers to the level of headings. "Stacked" headings occur when there is no text between two consecutive headings.

Want some more information on using headings? The Purdue OWL has a great guide on using APA style to create your headings. This style is also compatible with the styles noted for scientific journals. Check out the [APA Headings](#) page!

Practice what you've learned! Complete the following activities to reinforce what you have learned about headings.

Activity 1: Locate a professional journal in your chosen major field, and locate the guidelines for writers who want to submit articles to that journal. What format is given for the use of headings?

Activity 2: In that same journal (you may have to actually visit the library...or use the university's data base) examine the use of headings. Can you explain in your own words how the headings work to organize the article? See if you can find examples of headings that don't reflect the guidelines in this chapter.